

Patent claims:

1. A sequence casting process for the continuous production of a high-purity cast metal strand from a metal melt, preferably a steel melt, the metal melt being fed in controlled fashion from a melt vessel (5) to a tundish (8) and being discharged in controlled fashion from this tundish into a continuous-casting mold (4), and the supply of metal melt into the tundish being interrupted during the change of melt vessel, whereas the supply of the metal melt into the continuous-casting mold is continued, characterized in that during a period of time from the resumption of the supply of metal melt into the tundish until the point at which a quasi-steady operating bath level in the tundish is reached, the inflow rate into the tundish is greater than the outflow rate out of the tundish, and for 70% to 100%, preferably for 70% to 99%, in particular for 70% to 95%, of this period the inflow rate into the tundish is less than or equal to double, preferably less than or equal to 1.5 times, the outflow rate out of the tundish.

2. The sequence casting process as claimed in claim 1, characterized in that the inflow rate into the tundish corresponds to at least 0.5 times the maximum inflow rate during steady-state casting operation.

3. The sequence casting process as claimed in claim 1 or 2, characterized in that the supply of metal melt within the last 5% to 30% of the period from the resumption of the supply of metal melt into the tundish until the point at which the quasi-steady operating bath level is reached takes place at an inflow rate which is reduced compared to the inflow rate during the preceding period of time.

4. The sequence casting process as claimed in one of the preceding claims, characterized in that the supply

of metal melt takes place at a substantially maximum inflow rate immediately on resumption of the supply of melt into the tundish for 0.1% to 30%, preferably for 3% to 15%, of the period until the point at which the quasi-steady operating bath level in the tundish is reached, and thereafter the supply of metal melt takes place at a filling rate which is reduced compared to the initial filling rate, until the point at which the quasi-steady operating bath level is reached.

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5. The sequence casting process as claimed in one of the preceding claims 3 and 4, characterized in that the reduced filling rate follows a time curve which decreases continuously or in steps.

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6. The sequence casting process as claimed in one of the preceding claims, characterized in that the supply of metal melt into the tundish is interrupted for a period of time when the quasi-steady operating bath level is reached.

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7. The sequence casting process as claimed in claim 6, characterized in that the period of time for which the supply of melt is interrupted lasts between 1 sec and 2 min, preferably between 10 sec and 70 sec.

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8. The sequence casting process as claimed in one of the preceding claims, characterized in that a region of the free bath surface in the tundish which immediately surrounds the shroud is kept free of coverage with a covering agent at least during the quasi-steady-state operation and preferably all the time.

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9. The sequence casting process as claimed in one of the preceding claims 6 and 7, characterized in that after the resumption of the supply of metal melt into the tundish, this supply of metal melt into the tundish is controlled quantitatively as a function of the discharge of the metal melt from the tundish.

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10. The sequence casting process as claimed in one of claims 1 to 8, characterized in that the supply of metal melt into the tundish is controlled
5 quantitatively as a function of the discharge of the metal melt from the tundish at least for 70% to 100%, preferably for 70% to 99%, in particular for 70% to 95%, of the period from the resumption of the supply of metal melt into the tundish until the point at which a
10 quasi-steady operating bath level is reached in the tundish and/or from the point at which the quasi-steady operating bath level is reached.

11. The sequence casting process as claimed in one of
15 the preceding claims, characterized in that the quantity of metal melt supplied to the tundish and the quantity of metal melt discharged from the tundish during casting of a steel strip on a two-roller casting installation is between 0.5 t/min and 4.0 t/min,
20 preferably between 0.8 t/min and 2.0 t/min.

12. The sequence casting process as claimed in one the preceding claims, characterized in that a covering agent is added onto the bath surface of the metal melt
25 in the tundish on demand, and this addition of a covering agent onto the bath surface of the metal melt takes place in a surface region with a low surface flow velocity, waviness of the bath surface or turbulence intensity.

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13. The sequence casting process as claimed in claim 12, characterized in that the covering agent is applied in fine-grain or powder form, preferably using a semi-automatic or fully automatic addition device.

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14. The sequence casting process as claimed in one of the preceding claims, characterized in that the quasi-steady operating bath level is set and monitored by means of a tundish weight measurement or by means of an

equivalent measurement method.

15. The sequence casting process as claimed in one of the preceding claims, characterized in that at least
5 during the period between the resumption of the supply of the metal melt into the tundish and the point at which the quasi-steady operating bath level is reached, the metal melt contained in the tundish is divided by a divider plate into two partial quantities, metal melt
10 from the melt vessel being fed to a first partial quantity and metal melt being discharged from a second partial quantity into the continuous-casting mold, and metal melt being transferred continuously from the first partial quantity to the second partial quantity,
15 the inflow rate to the first partial quantity in the tundish being greater than the outflow rate from the second partial quantity, and the inflow rate to the first partial quantity being less than or equal to double the outflow rate from the second partial
20 quantity for 70% to 100%, preferably for 70% to 99%, in particular for 70% to 95%, of the period from the resumption of the supply of metal melt into the tundish until the point at which the quasi-steady operating bath level of the second partial quantity in the
25 tundish is reached.

16. The sequence casting process as claimed in claim 15, characterized in that the supply of metal melt within the last 5% to 30% of the period from the
30 resumption of the supply of metal melt into the tundish until the point at which the quasi-steady operating bath level of the second partial quantity in the tundish is reached takes place at an inflow rate which is reduced compared to the inflow rate during the
35 preceding period of time.

17. The sequence casting process as claimed in claim 15 or 16, characterized in that the supply of metal melt takes place at a substantially maximum

inflow rate immediately on resumption of the supply of melt into the tundish for 1% to 30%, preferably for 3% to 15%, of the period until the point at which the quasi-steady operating bath level of the second partial quantity in the tundish is reached, and thereafter the supply of metal melt takes place at a filling rate which is reduced compared to this maximum inflow rate until the point at which the operating bath level of the second partial quantity in the tundish is reached.

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18. The sequence casting process as claimed in one of claims 15 to 17, characterized in that metal melt is transferred from the first partial quantity to the second partial quantity through one or more openings in the divider plate.

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19. The sequence casting process as claimed in one of claims 15 to 17, characterized in that metal melt is transferred from the first partial quantity to the second partial quantity through a free space between the divider plate and the base of the tundish.

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20. The sequence casting process as claimed in one of claims 15 to 19, characterized in that when the quasi-steady operating bath level of the second partial quantity of the metal melt in the tundish is reached, the supply of metal melt into the tundish is controlled quantitatively as a function of the discharge of the metal melt from the tundish.

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